

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

PANASONIC CORPORATION,
Plaintiff/Counterclaim-
Defendant,

V.

**MAGNA INTERNATIONAL INC.,
MAGNA ELECTRONICS INC.,
Defendants/Counterclaim-
Plaintiffs**

6-21-CV-319-ADA

MEMORANDUM IN SUPPORT OF CLAIM CONSTRUCTION ORDER

On January 25, 2022, the Court held a hearing to determine the proper construction of the disputed claim terms. Plaintiff Panasonic Corporation (“Panasonic”) accuses Defendants Magna International Inc. and Magna Electronics Inc. (collectively “Magna”) of infringing four patents: U.S. Patent Nos. 6,912,001 (“the ’001 Patent”); 6,970,184 (“the ’184 Patent”); 10,615,516 (“the ’516 Patent”); 10,673,149 (“the ’149 Patent”) (collectively the “Panasonic Asserted Patents”). Dkt. No. 62. Counterclaim-Plaintiffs Magna accuses Counterclaim-Defendant Panasonic of infringing three patents: U.S. Patent Nos. 7,956,336 (“the ’336 Patent”); 9,632,799 (“the ’799 Patent”); 9,937,876 (“the ’876 Patent”) (collectively the “Magna Asserted Patents”).¹ Before the Court are the parties’ claim construction briefs. With respect to the Panasonic Asserted Patents, Magna filed an opening claim construction brief (Dkt. No. 45), to which Panasonic filed a responsive claim construction brief (Dkt. No. 49), to which Magna filed a reply brief (Dkt. No. 51), to which Panasonic filed a sur-reply brief (Dkt. No. 56). With respect to the Magna Asserted

¹ The parties indicate that Magna asserts four additional patents but that these additional patents do not have any claim terms in dispute. Dkt. No. 62 at fn. 2.

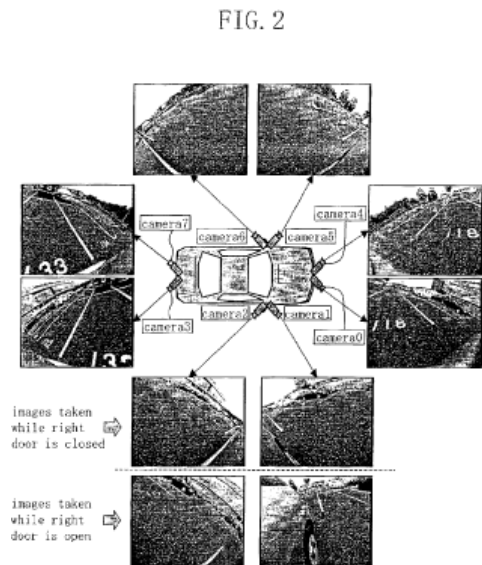
Patents, Panasonic filed an opening claim construction brief (Dkt. No. 47), to which Magna filed a responsive claim construction brief (Dkt. No. 48), to which Panasonic filed a reply brief (Dkt. No. 52), to which Magna filed a sur-reply brief (Dkt. No. 55). The parties additionally provided an Amended Joint Claim Construction Statement. Dkt. No. 62.²

Having considered the parties' arguments from the hearing and those presented in their claim construction briefs, having considered the intrinsic evidence, and having made subsidiary factual findings about the extrinsic evidence, the Court hereby issues a Claim Construction Order concurrent with this memorandum. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc); *see also Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015).

I. OVERVIEW OF THE PANASONIC ASSERTED PATENTS

A. The '001 Patent

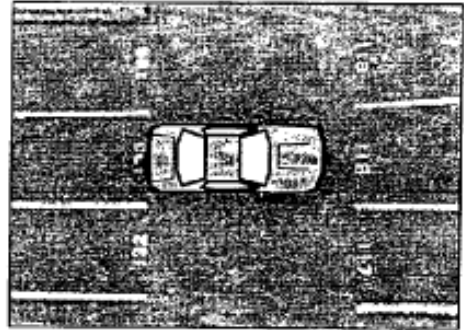
The '001 Patent is titled "Image Processor And Monitoring System." At a high level, the '001 Patent relates to a technique of generating a synthesized image from multiple images that have been captured by cameras mounted on a vehicle. '001 Patent at 1:6-8. More particularly, the '001 Patent relates to a vehicular monitoring system used as a safety check aid during vehicle driving. *Id.* at 1:8-11.



² Citations to the parties' claim construction briefs and Amended Joint Claim Construction Statement are to the Case Management/Electronic Case Files (Dkt. Nos.) and pin cites are to the pagination assigned through ECF.

The '001 Patent explains that an image processor receives multiple images taken by cameras mounted on a vehicle, generates a synthesized image from the images, and outputs the synthesized image to a display device. '001 Patent at 1:66–2:4. The '001 Patent recognizes several problems that may arise because “it is highly probable that those cameras for use in such a monitoring system are

FIG. 4A



mounted on various movable parts of the vehicle.” *Id.* at 1:33–38. To address this issue, the '001 Patent describes that “the display modes of a synthesized image are switched in accordance with a state of a moveable part of a vehicle.” *Id.* at 2:7–9. In one embodiment, the '001 Patent describes switching from a “normal mode into an alert mode,” if the state of a moveable part of the vehicle has altered the position or direction of at least one of the cameras to make the synthesized image unnatural. *Id.* at 2:17–22. The '001 Patent further describes that the synthesized image may be generated in the alert mode without using the image taken by the camera that has had its position or direction changed. *Id.* 2:23–27. As another alternative, the '001 Patent teaches that the image processor may also output an alert message instead of, or along with, the synthesized image in the alert mode. *Id.* at 2:30–32.

Independent claim 1 is reproduced below with the disputed terms in italics:

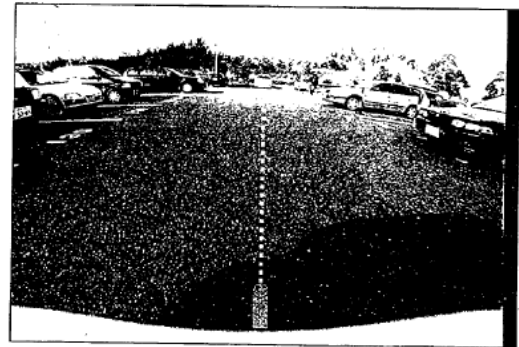
1. An image processor comprising an image processing section, which receives multiple images that have been taken by cameras mounted on a vehicle to monitor surroundings of the vehicle, generates a synthesized image from the multiple images and outputs the synthesized image to a display device,
 - wherein the image processing section *switches display modes of the synthesized image* in accordance with a state of a movable part of the vehicle,
 - wherein if a change in the state of the movable part has altered the position or direction of at least one of the cameras to make the synthesized image *unnatural*, the image processing section *switches the display modes of the synthesized image* from a normal mode into an *alert mode*.

'001 Patent at 12:27-41 (emphasis added).

B. The '184 Patent

The '184 Patent is titled "Image Display Method And Apparatus For Rearview System." The '184 Patent generally relates to an image display method and apparatus for a rearview camera mounted on a vehicle. '184 Patent at 1:7-8. More particularly, the '184 Patent is directed to a rearview camera mounted on a vehicle for driver assistance when coupling a hitch to a trailer. *Id.* at 1:8-12. The '184 Patent explains that it is difficult for a driver to accurately back the vehicle so that the hitch mounted in a blind spot to the driver may engage the coupling member on a trailer. *Id.* at 1:26-28. The '184 Patent discloses an image display method and apparatus that superimposes an auxiliary line image indicating the straight rear direction of the vehicle on the image taken by a rearview camera of the vehicle. *Id.* at 1:41-54, Fig. 7.

FIG. 7



Independent claim 1 is reproduced below with the disputed terms in italics:

1. An image display method for a rearview camera for displaying an image shot by a rearview camera mounted on a vehicle on a screen that is viewed from a driver's seat, comprising the step of:
 - displaying an auxiliary line image indicating the straight rear direction of the vehicle superimposed on the image shot by the camera on the screen,
 - wherein said auxiliary line image *extends from the position of a hitch attached at the rear of the vehicle.*

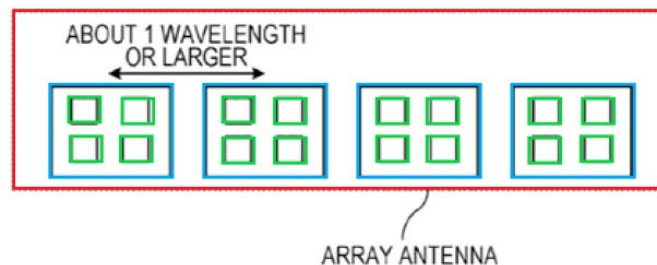
'184 Patent at 9:37-45 (emphasis added).

C. The '516 and '149 Patents

The '149 Patent is a continuation of the '516 Patent. Both are titled “Radar Device” and referred to collectively in the parties’ briefing as the radar patents.³ The claims of the radar patents are directed to a “radar device” and describe a antenna arrangement referred to as an “array antenna.” *See, e.g.*, '516 Patent at cl. 1. The claims recite, for example, a radar device that includes a “transmitting array antenna” and a “receiving array antenna.” *Id.* at 21:54-55. The radar patents describe that the radar device is intended to permit detection of objects or “targets” and avoid the generation of undesirable grating lobes, which may lead to a false detection of objects. *Id.* at 2:4-10, 4:1-3. Such radar devices can be used, for example, on vehicles to detect objects such as pedestrians or other vehicles. *Id.* at 1:14-17, 4:63-65.

The radar patents refer to the disclosed radar device as MIMO (i.e., multiple input and multiple output) that includes multiple antennas on the radar transmitter as well as the radar receiver. '516 Patent at 1:58-60. As shown in the Figure 1B embodiment (annotated with coordinating font color), the radar patents explain that the transmitting **array antenna** and the receiving **array antenna** each include multiple **subarray elements**. *Id.* at 2:26-27, 2:58-59, 3:51-56. Each subarray element includes **multiple antenna elements**. *Id.* at 2:30-31.

FIG. 1B



³ The Court cites the '516 Patent when referencing common portions of the radar patent specification.

The radar patents disclose different arrangements and spacing configurations of the array antenna. In one example, the subarray elements are described as linearly arranged in a first direction in each of the transmitting array antenna and the receiving array antenna. '516 Patent at 2:28-30. In this example, the radar patents describe that an absolute value of a difference between a subarray element spacing of the transmitting array antenna and a subarray element spacing of the receiving array antenna is equal to the predetermined antenna element spacing. *Id.* at 2:33-37. In another example, a grid arrangement is disclosed having a first direction and a second direction orthogonal to each other. '149 Patent at 21:56-58.

Representative independent claim 1 of the '516 Patent is reproduced below with its disputed terms in italics:

1. A radar device comprising:
 - a transmitting *array antenna*;
 - a receiving *array antenna*;
 - a radar transmission circuitry which, in operation, transmits a radar signal through the transmitting *array antenna*; and
 - a radar reception circuitry which, in operation, receives a reflected wave signal through the receiving *array antenna*, wherein the reflected wave signal is the radar signal reflected by an object, wherein,
 - the transmitting *array antenna* includes a plurality of transmitting antennas,
 - the receiving *array antenna* includes a plurality of receiving antennas,
 - the transmitting antennas are linearly arranged in a first direction,
 - the receiving antennas are linearly arranged in the first direction,
 - a *transmitting antenna pitch of the transmitting array antenna* in the first direction is larger than 1 wavelength,
 - a *receiving antenna pitch of the receiving array antenna* in the first direction is larger than 1 wavelength, and
 - an absolute value of a difference between the *transmitting antenna pitch of the transmitting array antenna* and the *receiving antenna pitch of the receiving array antenna* in the first direction is not smaller than 0.5 wavelength and not larger than 0.75 wavelength.

'516 Patent at 21:53–22:14 (emphasis added).

II. OVERVIEW OF THE MAGNA ASSERTED PATENTS

The Magna Asserted Patents are part of the same patent family, and the parties agree that their specifications are nearly identical. *See* Dkt. No. 47 at fn. 1; Dkt. No. 48 at fn. 1.⁴ As the parties did in their briefing, the Court refers to the '336 Patent when referencing the common specification of the Magna Asserted Patents. For reference, background on the '336 Patent is provided.

A. The '336 Patent (Representative of the Magna Asserted Patents)

At a high level, the Magna Asserted Patents are directed to a vehicle imaging system that includes a camera mounted at an exterior portion of a vehicle for providing an image of a scene exteriorly of the vehicle. '336 Patent at 1:19-24. The Magna Asserted Patents describe “a camera module that maintains the camera or imaging sensor and is substantially impervious to environmental elements, such as rain, snow, dirt, dust, road splash, road debris and the like.” *Id.* at 3:30-34. The Magna Asserted Patents further describe providing “at least partial, and preferably substantial, reduced

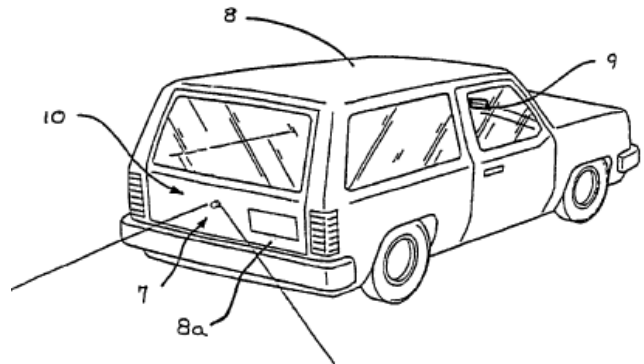


Fig. 1

vibration affects [sic] of the camera or image sensor.” *Id.* at 3:34-36. The Abstract of the '336 Patent states:

An imaging system for a vehicle includes a camera module positionable at the vehicle and a control. The camera module includes a plastic housing that houses an image sensor, which is operable to capture images of a scene occurring exteriorly of the vehicle. The control is operable to process images captured by the image sensor. The portions of the housing may be laser welded or sonic welded together to substantially seal the image sensor and associated components within the plastic

⁴ Magna notes that U.S. Patent No. 10,913,401 is another asserted patent in the same family but that the '401 Patent does not have any claim terms in dispute. *Id.*

housing. The housing may include a ventilation portion that is at least partially permeable to water vapor to allow water vapor to pass therethrough while substantially precluding passage of water droplets and/or other contaminants. The housing may be movable at the vehicle between a stored position and an operational position, where the image sensor may be directed toward the exterior scene.

'336 Patent at Abstract.

Representative independent claim 1 of the '336 Patent is reproduced below with its disputed terms in italics:

1. An imaging system for a vehicle, said imaging system comprising:
a camera module configured for mounting at a vehicle, said camera module comprising a plastic housing and an imaging sensor having a lens and a pixelated imaging array, said plastic housing including a connector portion and a camera portion, wherein said connector portion and said camera portion are laser welded together to form a *substantially hermetic seal*;
wherein said camera module comprises a self-contained camera module with said imaging sensor and associated components *substantially sealed* to limit or *substantially preclude water intrusion* into said plastic housing, and wherein said camera module is configured to be positioned at the vehicle as a unit;
wherein said connector portion of said camera module comprises an electrical connector suitable for electrically conductive connection to a vehicle electrical connector when said camera module is positioned at the vehicle;
wherein said imaging sensor is disposed at a first substrate and wherein said electrical connector is disposed at a second substrate, and wherein said electrical connector is electrically conductively connected to circuitry of said imaging sensor at said first substrate via a flexible connector;
wherein said first substrate is attached at said camera portion and said second substrate is attached at said connector portion such that said first and second substrates are disposed within said plastic housing with said imaging sensor having field of view through a portion of said camera portion;
wherein said electrical connector extends from said second substrate connector portion so as to be accessible at an end of said connector portion for connecting to the vehicle electrical connector when said camera module is positioned at the vehicle; and
a control operable to process video images captured by said imaging sensor.

'336 Patent at 34:51–35:22 (emphasis added).

III. LEGAL PRINCIPLES

A. Claim Construction

“It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude.’” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). To determine the meaning of the claims, courts start by considering the intrinsic evidence. *Id.* at 1313; *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Commc’ns Grp., Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). The intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *Phillips*, 415 F.3d at 1314; *C.R. Bard, Inc.*, 388 F.3d at 861. The general rule—subject to certain specific exceptions discussed *infra*—is that each claim term is construed according to its ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the patent. *Phillips*, 415 F.3d at 1312-13; *Alloc, Inc. v. Int’l Trade Comm’n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003); *Azure Networks, LLC v. CSR PLC*, 771 F.3d 1336, 1347 (Fed. Cir. 2014) (quotation marks omitted) (“There is a heavy presumption that claim terms carry their accustomed meaning in the relevant community at the relevant time.”) *cert. granted, judgment vacated*, 135 S. Ct. 1846 (2015).

“The claim construction inquiry . . . begins and ends in all cases with the actual words of the claim.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998). “[I]n all aspects of claim construction, ‘the name of the game is the claim.’” *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1298 (Fed. Cir. 2014) (quoting *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998)) *overruled on other grounds by Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed. Cir. 2015). First, “the context in which a term is used in the asserted claim can be highly instructive.” *Phillips*, 415 F.3d at 1314. Other asserted or unasserted claims can also aid in

determining the claim’s meaning, because claim terms are typically used consistently throughout the patent. *Id.* Differences among the claim terms can also assist in understanding a term’s meaning. *Id.* For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. *Id.* at 1314-15.

The specification may also resolve ambiguous claim terms “where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone.” *Teleflex, Inc.*, 299 F.3d at 1325. But, “[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims.” *Comark Commc’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)); *see also Phillips*, 415 F.3d at 1323. “[I]t is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited.” *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004).

The prosecution history is another tool to supply the proper context for claim construction because, like the specification, the prosecution history provides evidence of how the U.S. Patent and Trademark Office (“PTO”) and the inventor understood the patent. *Phillips*, 415 F.3d at 1317. However, “because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Id.* at 1318; *see also Athletic Alts., Inc. v. Prince Mfg.*, 73 F.3d 1573, 1580 (Fed. Cir. 1996) (ambiguous prosecution history may be “unhelpful as an interpretive resource”).

Although extrinsic evidence can also be useful, it is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc.*, 388 F.3d at 862). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too broad or may not be indicative of how the term is used in the patent. *Id.* at 1318. Similarly, expert testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert’s conclusory, unsupported assertions as to a term’s definition are not helpful to a court. *Id.* Extrinsic evidence is “less reliable than the patent and its prosecution history in determining how to read claim terms.” *Id.* The Supreme Court has explained the role of extrinsic evidence in claim construction:

In some cases, however, the district court will need to look beyond the patent’s intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period. *See, e.g., Seymour v. Osborne*, 11 Wall. 516, 546 (1871) (a patent may be “so interspersed with technical terms and terms of art that the testimony of scientific witnesses is indispensable to a correct understanding of its meaning”). In cases where those subsidiary facts are in dispute, courts will need to make subsidiary factual findings about that extrinsic evidence. These are the “evidentiary underpinnings” of claim construction that we discussed in *Markman*, and this subsidiary factfinding must be reviewed for clear error on appeal.

Teva Pharm. USA, Inc. v. Sandoz, Inc., 574 U.S. 318, 331-32 (2015).

B. Departing from the Ordinary Meaning of a Claim Term

There are “only two exceptions to [the] general rule” that claim terms are construed according to their plain and ordinary meaning: “1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of the claim term either

in the specification or during prosecution.”⁵ *Golden Bridge Tech., Inc. v. Apple Inc.*, 758 F.3d 1362, 1365 (Fed. Cir. 2014) (quoting *Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)); *see also GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) (“[T]he specification and prosecution history only compel departure from the plain meaning in two instances: lexicography and disavowal.”). The standards for finding lexicography or disavowal are “exacting.” *GE Lighting Sols.*, 750 F.3d at 1309.

To act as his own lexicographer, the patentee must “clearly set forth a definition of the disputed claim term,” and “clearly express an intent to define the term.” *Id.* (quoting *Thorner*, 669 F.3d at 1365); *see also Renishaw*, 158 F.3d at 1249. The patentee’s lexicography must appear “with reasonable clarity, deliberateness, and precision.” *Renishaw*, 158 F.3d at 1249.

To disavow or disclaim the full scope of a claim term, the patentee’s statements in the specification or prosecution history must amount to a “clear and unmistakable” surrender. *Cordis Corp. v. Bos. Sci. Corp.*, 561 F.3d 1319, 1329 (Fed. Cir. 2009); *see also Thorner*, 669 F.3d at 1366 (“The patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.”). “Where an applicant’s statements are amenable to multiple reasonable interpretations, they cannot be deemed clear and unmistakable.” *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1326 (Fed. Cir. 2013).

C. Preamble as a Limitation

Courts presume that the preamble does not limit the claims. *Am. Med. Sys., v. Biolitec, Inc.*, 618 F.3d 1354, 1358 (Fed. Cir. 2010) (quoting *Allen Eng’g Corp. v. Bartell Indus.*, 299 F.3d

⁵ Some cases have characterized other principles of claim construction as “exceptions” to the general rule, such as the statutory requirement that a means-plus-function term is construed to cover the corresponding structure disclosed in the specification. *See, e.g., CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1367 (Fed. Cir. 2002).

1336, 1346 (Fed. Cir. 2002)) (“Generally,” we have said, “the preamble does not limit the claims.”). But “[i]n general, a preamble limits the invention if it recites essential structure or steps, or if it is ‘necessary to give life, meaning, and vitality’ to the claims.” *Catalina Mktg. Int’l, v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999)). “Conversely, a preamble is not limiting ‘where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.’” *Catalina*, 289 F.3d at 808 (quoting *Rowe v. Dror*, 112 F.3d 473, 478 (Fed. Cir. 1997)). Although no litmus test defines when a preamble limits claim scope, the Federal Circuit has provided some “guideposts” in making the determination: (1) dependence on a disputed preamble phrase for antecedent basis, (2) preamble is essential to understand limitations or terms in the claim body, (3) preamble recites “additional structure or steps underscored as important by the specification,” and (4) “clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art.” *Catalina*, 289 F.3d at 808-09.

IV. CONSTRUCTION OF DISPUTED TERMS OF THE PANASONIC ASSERTED PATENTS

A. The '001 Patent

1. “switches [the] display modes of the synthesized image”

Panasonic’s Proposal	Magna’s Proposal
plain and ordinary meaning	changes synthesized image processing underlying the display modes

The phrase “switches [the] display modes of the synthesized image” appears in claims 1, 5, and 11 of the '001 Patent. Dkt. No. 62 at 2. The parties dispute whether the claim phrase requires construction. Magna frames the dispute as whether a switch in “display modes” from “normal mode” to “alert mode” can encompass something that the driver merely sees—a visual

change—or must require a change in the image processing itself. Dkt. No. 45 at 7. Magna argues that a change in what the driver sees is not the only change that is required. *Id.* Magna contends that the change in processing is a fundamental part of the “image processor” to which the patent is directed. *Id.*; *see also* Dkt. No. 51 at 4. Magna further argues that “how” the switch between normal mode and alert mode is accomplished is provided in detail in the patent specification and “is critical to the operation of the alleged invention.” Dkt. No. 51 at 5.

Panasonic argues that the claim phrase “switches [the] display modes of the synthesized image” is not given any special meaning in the ’001 Patent, is easily understandable within the context of the claims as a whole, and should be given its plain meaning. Dkt. No. 49 at 23; *see also* Dkt. 56 at 12. The Court agrees.

The claims themselves require that the “image processing section switches [the] display modes of the synthesized image.” *See, e.g.*, ’001 Patent at 12:33-34 (claim 1); 14:1-2 (claim 11). Magna appears to agree. Dkt. No. 51 at 5 (“And the claims themselves make clear that ‘the image processing section’ (not merely a visual display) is what ‘switches display modes of the synthesized image.’”). Panasonic does not dispute that some underlying change is necessary to generate the images displayed in each respective mode. Dkt. No. 56 at 13 (“There is no doubt that a switch in display modes necessitates some underlying change in the steps required to generate the images displayed in each respective mode.”). The dispute centers on Magna’s additional requirement that the switch in display modes “changes synthesized image processing underlying the display modes.” This specific requirement is notably absent from the language of the claims. To the extent this feature is described in relation to the disclosed embodiments, the Court finds that it should not be imported into the claims. *Phillips*, 415 F.3d at 1320 (identifying “one of the cardinal sins of patent law—reading a limitation from the written description into the claims”); *see*

also Liebel-Flarsheim, 358 F.3d at 906 (explaining that “[e]ven when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expression of manifest exclusion or restriction”) (citation and internal quotation marks omitted).

The claims further specify that the switch in display modes is made “in accordance with a state of a movable part of the vehicle.” ’421 Patent at 12:34-35 (claim 1); 14:2-3 (claim 11). Magna argues that “the specification describes in detail how the switch works, in two possible embodiments.” Dkt. No. 45 at 7. Magna asserts that in both embodiments “the switch between ‘normal mode’ and ‘alert mode’ is controlled by a ‘display mode changer’ embedded *within* the image processing section.” *Id.* Magna argues that in each embodiment the display mode changer alters the way the synthesized image is processed by controlling the inputs to the “pixel synthesizer.” *Id.* Contrary to Magna’s argument, the Court finds that the ’001 Patent uses and describes the claim-phrase-at-issue in a more general context and attributes no special meaning. *See, e.g.*, ’001 Patent at 3:12-14 (“The image processing section switches display modes of the synthesized image in accordance with a state of a moveable part of the vehicle.”). This straightforward use is further described in connection with Fig. 2:

Responsive to a state signal S1 indicating a current state of a vehicle moveable part, a display mode changer 23 switches the display modes of the synthesized image. For example, if a change in the state of the moveable part has altered the position or direction of one of the cameras to make the synthesized image unnatural, the changer 23 switches the display modes of the synthesized image from a normal mode into an alert mode.

’001 Patent at 4:42-49; *see also* 5:12-14 (describing that “the changer 23 switches the display modes of the synthesized image”).

For the reasons set forth above, the claim phrase “switches [the] display modes of the synthesized image” is given its **plain and ordinary meaning**.

2. “unnatural”

Panasonic’s Proposal	Magna’s Proposal
plain and ordinary meaning	misaligned

The term “unnatural” appears in claims 1 and 11 of the ’001 Patent. Dkt. No. 62 at 2. The parties dispute whether the claim phrase requires construction. Magna argues that the ’001 Patent provides a particular meaning for the term “unnatural”—“misaligned.” Dkt. No. 45 at 8. Magna argues that if the term is not construed it will result in jury confusion because it would broadly sweep in concepts of unnaturalness not described in the ’001 Patent. *Id.* Panasonic argues that the term is easily understood within the context of the claim language as a whole, and there is no basis for departing from this plain meaning. Dkt. No. 49 at 21. Panasonic contends that the plain meaning of “unnatural” is evident from the term’s use in the claim—“not natural or not normal.” Dkt. No. 49 at 21. The Court agrees with Panasonic.

The Court finds that the meaning of the term “unnatural” is readily understood from the term’s contextual use in the claims. For example, the claims describe that a synthesized image is made “unnatural” when the state of a moveable part alters the position or direction of one of the vehicle’s cameras, i.e., it has been moved. *See, e.g.*, ’001 Patent at 12:36-38 (claim 1 describing that “if a change in the state of the movable part has altered the position or direction of at least one of the cameras to make the synthesized image unnatural”). Magna’s concern appears to be that “unnatural” may be argued by Panasonic to “capture *any* deviation from *the norm*.” Dkt. No. 51 at 6-7. The Court finds that Magna’s concern is sufficiently addressed by the term’s contextual

use in the claims. *Phillips*, 415 F.3d at 1314 (explaining that “the context in which a term is used in the asserted claim can be highly instructive”).

The plain and ordinary use of “unnatural” in the claims is further confirmed by the specification. *See, e.g.*, ’001 Patent at 2:17-19 (describing that “if a change in the state of the moveable part has altered the position or direction of at least one of the cameras to make the synthesized image unnatural”); 10:45-48 (describing that a synthesized image is made unnatural “if any moveable part of a vehicle has changed its state”). The ’001 Patent specification further describes that there are “other imaginable situations” that may result in a synthesized image becoming unnatural. *Id.* at 11:32-39. For example, if a moveable part has changed its state, the image of the moveable part may occupy a different portion of the image taken by a camera mounted on a fixed part of the vehicle, thereby making the resultant synthesized image unnatural. *Id.* In this alternative example, the change in state of the moveable part has made the synthesized image unnatural in a manner that is different from the image “misalignment” embodiments. Thus, contrary to Magna’s argument, the Court finds that the ’001 Patent does not uniformly describe the term “unnatural” in the context of image misalignment. Regardless, Magna has not persuasively demonstrated that use of the term “unnatural” in the claims should be limited to the image “misalignment” examples disclosed in the specification.

For the reasons set forth above, the claim term “**unnatural**” is given its **plain and ordinary meaning**.

3. “alert mode”

Panasonic’s Proposal	Magna’s Proposal
plain and ordinary meaning	a display mode in which no unnatural image is output

The term “alert mode” appears in claims 1, 4, and 11 of the ’001 Patent. Dkt. No. 62 at 2. The parties dispute whether the claim phrase requires construction. Magna argues that the dispute hinges on whether “alert mode” means more than simply a mode for alerting a driver of a vehicle. Dkt. No. 45 at 8. Magna argues that “alert mode”—unlike Panasonic’s plain and ordinary proposal—is a context driven term defined in the specification through implication. *Id.* at 9. Magna contends that there is a dispute between the parties as to whether an “alert mode” can include an unnatural image. *Id.* Panasonic argues that the term “alert mode” is easily understandable to a jury as simply “a mode that alerts the driver.” Dkt. No. 49 at 25. In the context of the ’001 Patent, Panasonic argues that “alert mode” is a mode that alerts the driver that “the synthesized image has become unnatural.” *Id.*

The claims of the ’001 Patent describe a switch in display mode from “normal mode” to “alert mode.” *See, e.g.*, ’001 Patent at 12:39-41 (claim 1 describing that “the image processing section switches the display modes of the synthesized image form [sic] a normal mode into an alert mode”). The switch into an alert mode occurs when the state of a movable part alters the position or direction of at least one vehicle camera. *Id.* at 12:36-38 (“the state of the moveable part has altered the position or direction of at least one of the cameras to make the synthesized image unnatural”). Therefore, as used in the claims, an “alert mode” is a mode that occurs when the synthesized image becomes unnatural. *Id.*

Magna argues that an “alert mode” should be interpreted to mean “a display mode in which no unnatural image is output.” The Court disagrees. In the context of the ’001 Patent, an “alert mode” is a display mode that indicates a synthesized image has become unnatural. The claims describe that the indication may be provided in a number of different ways. For example, dependent claim 4 recites that “in the alert mode, the image processing section outputs an alert

message instead of, or along with, the synthesized image.” ’001 Patent at 12:49-51. Unlike Magna’s proposed construction, claim 4 does not preclude output of an unnatural synthesized image. This is confirmed by the patent specification, which similarly describes the feature as follows:

As another alternative, the image processing section may also output an alert message instead of, or along with, the synthesized image in the alert mode. Then, the user can quickly sense the unnaturalness of the synthesized image thanks to the alert message. Also, where the alert message displayed indicates exactly how the movable part has changed its state, the user can know the current situation of the vehicle quickly and timely.

’001 Patent at 2:30-37; *see also* 5:33-36 (“Optionally, in the alert mode, the output of the synthesized image itself may be suspended or the alert message selector 26 may output an alert message either alone or along with the synthesized image.”).

To the extent that Magna argues the specification consistently describes that “alert mode” excludes or does not permit display of the unnatural portion of the synthesized image, this feature is expressly contemplated by the dependent claims. *See, e.g.*, ’001 Patent at 12:42-45 (claim 2 describing that “in the alert mode, the image processing section generates the synthesized image without using the image taken by the camera that has had the position or direction thereof changed”); *see also* cl. 7. Moreover, similar to Magna’s proposed construction, dependent claim 3 recites that “in the alert mode, the image processing section does not output the synthesized image.” *Id.* at 12:46-48. Thus, the Court finds that the use of the term “alert mode” in the independent claims should not be interpreted to preclude output of an unnatural synthesized image, particularly when that feature is expressly contemplated by other claims. *Phillips*, 415 F.3d at 1314-15 (explaining that when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation); *see also Liebel-Flarsheim*, 358 F.3d at 910.

For the reasons set forth above, the Court rejects Magna’s proposal and finds that the use of the term “alert mode” in the independent claims does not preclude display of an unnatural image. The term **“alert mode”** is construed to mean **“a display mode that indicates a synthesized image has become unnatural.”**

B. The ’184 Patent

1. “extends from the position of a hitch attached at the rear of the vehicle”

Panasonic’s Proposal	Magna’s Proposal
plain and ordinary meaning	starts at a hitch

The phrase “extends from the position of a hitch attached at the rear of the vehicle” appears in claims 1 and 14 of the ’184 Patent. Dkt. No. 62 at 2. The parties dispute whether the phrase requires construction. Magna argues that its construction makes clear that the auxiliary line must start at the hitch, as in Figure 7, rather than from a different spatial point on the image other than the hitch. Dkt. No. 45 at 13. Magna contends that its proposed construction is the ordinary and customary meaning. *Id.* Magna further argues that its construction is supported by dependent claims and because every example in the specification represents the auxiliary line starting at the hitch. *Id.* at 13-14. Panasonic argues that the claim phrase does not require construction because the term “extends from” is well-understood and because the claims of the ’184 Patent indicate that the phrase has no special meaning. Dkt. No. 49 at 27. The Court agrees with Panasonic.

Claim 1 describes “an auxiliary line image indicating the straight rear direction of the vehicle.” ’184 Patent at 9:41-42. Claim 1 further describes that the auxiliary line is “superimposed on the image shot by the camera on the screen” and that the auxiliary line image “extends from the position of a hitch attached at the rear of the vehicle.” *Id.* at 9:42-43, 9:44-45. Claim 14 recites similar features. *Id.* at cl. 14.

Starting with the claim language, the Court finds that there is no requirement that the auxiliary line “start at” the hitch. Nor is this phrase used anywhere in the patent. Rather, the claims describe that the auxiliary line is “superimposed” on the image taken by the camera. In this regard, the Court finds that the phrase “extends from the position of a hitch . . .” describes the spatial arrangement of the auxiliary line vis-à-vis the position of a hitch. Magna argues that the “auxiliary line must start *at* the hitch . . . rather from a different spatial point on the image other than the hitch.” Dkt. No. 45 at 13. The Court disagrees. The claim language at issue does not describe the auxiliary line as “starting from,” “extending directly from,” or “touching” the hitch. Rather, the claim language describes the orientation of the auxiliary line as one that “extends from the position of a hitch attached at the rear of the vehicle.” The claim language does not preclude the auxiliary line as superimposed in a position preceding, overlapping, or proximate the position of a hitch, so long as the spatial orientation is one that “extends from the position of a hitch attached at the rear of the vehicle.” Moreover, the claim phrase describes the auxiliary line as extending from “the position of a hitch” not the hitch itself. In other words, the claim phrase does not recite “extends from a hitch.” Thus, Magna’s “starts at a hitch” construction is contrary to the term’s plain and ordinary meaning, as indicated by the plain language of the claims.

Magna argues that its “starts at a hitch” construction is supported by other claims of the ’184 Patent. Dkt. No. 45 at 13. The Court disagrees. Magna points, for example, to dependent claim 11 which recites “a horizontal line image crossing said auxiliary line image at a right angle and passing through the center of said hitch by illustration data.” ’184 Patent at 10:17-19. The features recited in dependent claim 11, however, do not necessitate Magna’s proposed construction. First, dependent claim 11 requires “a horizontal line . . . passing through the center of said hitch,” but does not require the auxiliary line to “start at a hitch.” For example, Magna has

not explained why the scope of claim 11 does not encompass an auxiliary line superimposed in a spatial position that precedes and extends through the position of the hitch. Second, the independent claims do not require the horizontal line and spatial orientation recited in dependent claim 11, thus indicating a broader scope and application. *See Phillips*, 415 F.3d at 1315 (“[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the dependent claims.”).

The Court further finds that Magna’s argument that the claim phrase “extends from the position of a hitch . . .” should be replaced with “starts from a hitch” is not supported by the ’184 Patent specification. The phrase “start at” is not used anywhere in the specification. Rather, the specification confirms that the auxiliary line may extend from a general location of where a hitch is typically positioned on a vehicle, not necessarily the hitch itself:

By extending the auxiliary line image from the hitch location typically provided at the center of the rear of the vehicle in the width direction, it is possible to back the vehicle accurately so that the hitch in the blind spot at the rear of the vehicle will engage a coupling member on a trailer.

’184 Patent at 3:4-9; *see also* 1:55-59 (“Preferably, the auxiliary line image extends from the position of the hitch . . .”).

For the reasons set forth above, the claim phrase **“extends from the position of a hitch attached at the rear of the vehicle”** is given its **plain and ordinary meaning**.

C. The ’516 and ’149 Patents

1. “array antenna”

Panasonic’s Proposal	Magna’s Proposal
plain and ordinary meaning	an antenna made up of a number of identical radiating elements in a regular arrangement and excited to obtain a prescribed radiation pattern

The term “array antenna” appears in claims 1, 3, 9, 11, 17, and 18 of the ’516 Patent and claims 1, 3, 6, 7, 9, 10, 11, 13, 16, 17, 19, and 20 of the ’149 Patent. Dkt. No. 62 at 3. The parties dispute whether the term requires construction.

Magna’s proposed construction imposes a number of different requirements for the term “array antenna,” including: “identical radiating elements,” “regular arrangement,” and “excited to obtain a prescribed radiation pattern.” Magna argues that by its express terms an array antenna requires an “array” or regular geometric arrangement of multiple antennas or antenna elements, which all work together to provide a desired radiation pattern. Dkt. No. 45 at 18. Magna contends that without a construction Panasonic could sow confusion by asserting that any subset of antenna elements within an “array antenna” can be the “array antenna” of the claims. *Id.* Magna further argues that “in every embodiment in the patents, the radiating elements within a given array antenna are identical and placed in a regular arrangement.” Dkt. No. 51 at 13.

Panasonic takes issue with Magna’s proposed construction arguing that it imports a number of restrictions from the intrinsic evidence into the phrase “array antenna” without basis or otherwise seeks to rely on extrinsic evidence to narrow the asserted claims. Dkt. No. 49 at 16. Panasonic argues that “array antenna,” as used in the asserted claims of the radar patents, has no specialized meaning and that the plain language of the claims explicitly recite its requirements. *Id.* Panasonic contends that the terms “array” and “antenna” have common meanings that would be understood to a POSITA and could be readily described to a jury. *Id.* at 16-17. Panasonic argues that it is Magna—not Panasonic—that seeks to sow confusion by importing limitations and restrictions to this term in the claims. *Id.* at 18.

The principal dispute between the parties appears to be whether the term “array antenna,” as used in the asserted claims of the radar patents, encompasses both “random” and “non-random”

array antennas.⁶ Compare Dkt. No. 51 at 14 (Magna arguing that absent a qualifier “an array antenna is presumed to be uniform, containing identical and regularly arranged elements”) with Dkt. No. 56 at 9 (Panasonic arguing that “the broader phrase, ‘array antenna,’ is not limited to such a uniform arrangement”). Magna acknowledges that not all array antennas include the requirements imposed by its proposed construction. Dkt. No. 51 at 12 (“And Magna has never argued that *all* array antennas in the abstract require a number of identical radiating elements in a regular arrangement and excited to obtain a prescribed radiation pattern.”). Magna argues instead “that the ‘array antenna’ of the asserted radar patents requires this definition.” *Id.* The Court disagrees.

The Court finds that the claims of the radar patents do not impose the limitations that Magna seeks to add with its proposed construction. Rather, the claims of the radar patents use the term “array antenna” in a generic, plain and ordinary context. For example, claim 1 of the ’516 Patent describes a radar device that includes “a transmitting array antenna” and a “receiving array antenna.” ’516 Patent at 21:53-55. Claim 1 goes on to state that “the transmitting array antenna includes a plurality of transmitting antennas” and that “the receiving array antenna includes a plurality of receiving antennas.” ’516 Patent at 21:64-67. Other claims include similar description but use the terms “first” and “second” to distinguish between different array antennas. *See, e.g.*, ’516 Patent at 22:47-49 (claim 9 describing a “radar device” that includes “a first array antenna”

⁶ A “non-random array antenna” is sometimes referred to as a “uniform,” “regular,” or “periodic” array antenna. *See, e.g.*, Dkt. No. 51 at 14-15 (differentiating a “random array antenna” from a “uniform array antenna”); Dkt. No. 49 at 20 (arguing the term “array antenna” encompasses both “a random and non-random (or regular, or periodic) array antenna”); Dkt. No. 45-13 at 10 (stating that the term “array antenna” includes “[a]n antenna comprised of a number of identical radiating elements in a regular arrangement” but that the term “is sometimes applied to cases where the elements are not identical or arranged in a regular fashion”); Dkt. No. 45-13 at 40 (defining the term “uniform linear array”).

and “a second array antenna”); *see also* ’149 Patent at 23:11-13 (claim 11). The claims further specify the arrangement of the plurality of antennas. For example, claim 1 of the ’516 Patent describes that the “transmitting antennas are linearly arranged in a first direction” and that “the receiving antennas are linearly arranged in the first direction.” ’516 Patent at 22:1-4. Other claims specify different arrangements. *See, e.g.*, ’149 Patent at 21:56-60 (claim 1 describing that “the transmitting antennas are arranged in a grid having a first direction and a second direction orthogonal to each other” and that “the receiving antennas are linearly arranged in the first direction”). The unencumbered use of “array antenna” in the claims of the radar patents indicates that the term should not be attributed a specialized or narrow meaning. *See CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (“Generally speaking, we indulge a heavy presumption that a claim term carries its ordinary and customary meaning.”) (citation and internal quotation marks omitted). Based on its contextual use in the claims of the radar patents, the Court construes “array antenna” to mean “an arrangement of multiple antennas or elements that can operate as a single antenna.”

The Court’s construction of “array antenna” is confirmed by the specification. For example, the radar patents describe that “the radar transmitter 100 transmits the radar transmission signal . . . through a transmitting array antenna that includes multiple transmitting antennas 106-1 to 106-Nt.” ’516 Patent at 4:51-54. Likewise, the radar patents further describe that “[t]he radar receiver 200 receives a reflected wave signal . . . through a receiving array antenna that includes multiple receiving antennas 202-1 to 202-Na.” *Id.* at 4:55-58; *see also* 1:42-43 (“an array antenna including multiple antennas (antenna elements)”; 1:58-60 (“Disclosed is a radar device (also referred to as a MIMO radar) that includes multiple antennas (array antennas) on the radar transmitter as well as the radar receiver . . .”).

Panasonic argues that not all embodiments of the radar patents require identical radiating elements in a regular arrangement. Dkt. No. 49 at 19. The Court agrees. For example, the radar patents disclose that, “as illustrated in FIG 1B, a spacing between the subarray elements needs to be *about 1 wavelength or larger*.” ’516 Patent at 3:54-56 (emphasis added). There is no requirement in the radar patents that this spacing be “identical,” “uniform,” or “regular” as Magna contends. Moreover, even if every disclosed embodiment in the radar patents includes identical spacing, as Magna asserts (Dkt. No. 45 at 20), Magna has not persuasively demonstrated that the claims should be limited to the preferred embodiment. *See, e.g., Imaginal Systematic, LLC v. Leggett & Platt, Inc.*, 805 F.3d 1102, 1109-10 (Fed. Cir. 2015) (explaining that the Federal Circuit “has repeatedly cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification” and affirming the district court’s finding that the specification “does not express any manifest exclusion or restriction as it pertains to specifically to the meaning of ‘vision guidance system.’”). Similar to *Imaginal Systematic*, the Court finds that Magna has not convincingly shown that the radar patents express a clear indication that the term “array antenna” is restricted to a specific type of antenna having the specific features and dimensional requirements imposed by Magna’s proposed construction. *Id.*

Magna’s reliance on extrinsic dictionary definitions and expert testimony to support its limiting construction of “array antenna” is unavailing. Magna’s expert offers that there are two basic types of array geometries: uniform and random. Dkt. No. 45-10 at ¶ 20. Magna’s expert acknowledges that in the “array antenna literature” it is possible to apply the term “element spacing” to both uniform and nonuniform arrays. *Id.* at ¶ 23. The IEEE dictionary cited by both parties recognizes that “this term [array antenna] is sometimes applied to cases where the elements are not identical or arranged in a regular fashion.” Dkt. No. 45-13 at 10. As opposed to supporting

its narrow interpretation, Magna’s extrinsic evidence demonstrates that, in at least some circumstances, a POSITA would understand the term “array antenna” to encompass both uniform and random array geometries. Likewise, Magna has acknowledged that not all array antennas in the abstract include the features required by its proposed construction. Dkt. No. 51 at 12. The Court, therefore, rejects Magna’s argument that the radar patents’ failure to use the modifier “random” means that the term “array antenna” standing alone is presumed to be uniform, containing identical and regularly arranged elements. Dkt. No. 51 at 14. The Court finds instead that the term “array antenna” should carry its plain and ordinary meaning and encompass both types of array antennas—random and uniform.

For the reasons set forth above, the Court construes the term **“array antenna”** to mean **“an arrangement of multiple antennas or elements that can operate as a single antenna.”**

2. The “antenna pitch” terms

Claim Term	Panasonic’s Proposal	Magna’s Proposal
transmitting antenna pitch of the transmitting array antenna '516 Patent, claims: 1, 3, 17 '149 Patent, claims: 1, 3, 6, 10	plain and ordinary meaning	single and equal amount of spacing between each of the antenna elements in the transmitting array antenna
receiving antenna pitch of the receiving array antenna '516 Patent, claims: 1, 3, 17 '149 Patent, claims: 1, 3, 7, 10	plain and ordinary meaning	single and equal amount of spacing between each of the antenna elements in the receiving array antenna
first antenna pitch of the first array antenna '516 Patent, claims: 9, 11, 18	plain and ordinary meaning	single and equal amount of spacing between each of the antenna elements in the first array antenna

'149 Patent, claims: 11, 13, 16, 20		
second antenna pitch of the second array antenna '516 Patent, claims: 9, 11, 18 '149 Patent, claims: 11, 13, 17, 20	plain and ordinary meaning	single and equal amount of spacing between each of the antenna elements in the second array antenna
the transmitting array antenna in the second direction is arranged with a second transmitting antenna pitch '149 Patent, claim: 9	plain and ordinary meaning	the antenna elements of the transmitting array antenna in the second direction are each configured to have a single and equal amount of spacing
the first array antenna in the second direction is arranged with a third antenna pitch '149 Patent, claim: 19	plain and ordinary meaning	the antenna elements of the first array antenna in the second direction are each configured to have a single and equal amount of spacing
pitch '516 Patent, claims: 1, 3, 9, 11, 17, 18 '149 Patent, claims: 1, 3, 6, 7, 9, 11, 13, 16, 17, 19, 20	spacing	Should be construed as part of longer terms in which it appears

With respect to the seven “antenna pitch” terms above, the parties dispute whether the term “pitch” should be construed separately or in the context of the six larger phrases in which the term appears. The parties appear to agree, however, that the term “pitch” means “spacing.” Dkt. No. 56 at 4 (Panasonic asserting that “[t]he parties agree that ‘pitch’ means ‘spacing’”); Dkt. No. 51 at 15 (Magna stating that “‘pitch’ is *related* to the spacing of the antennas of the array antenna” but arguing that “[pitch] nonetheless requires construction in the context of the longer claim phrases in order to have meaning”). Like the “array antenna” term, Magna proposes a construction for the six larger “antenna pitch” phrases that requires a “single and equal amount of spacing” between

the antenna elements, i.e., a uniform array. Magna contends that “pitch” refers to the entire structure of the array antenna, not the spacing between two elements in that array antenna. Dkt. No. 45 at 22-23. Magna argues that Panasonic’s “plain and ordinary meaning” proposed construction ignores the spatial arrangement of all the antenna elements in the array antenna and focuses instead on just certain elements in isolation. *Id.* at 23-24. Magna further argues that its construction is necessary to avoid rendering the claims meaningless because a person of skill in the art would not be able to determine which spacing to use in the claimed “absolute value” equation (e.g., ’516 Patent at cl. 1 (22:10-14)) to obtain a spacing that prevents grating lobes. *Id.* at 23. Magna again turns to the disclosed embodiments to argue that “the ‘array antennas’ in the radar patents have a regular, linear arrangement of antenna elements” such that “there is an equal amount of space between each adjacent antenna.” *Id.* at 24-26.

Panasonic argues that the parties agree that “pitch” means “spacing” and that the only dispute is whether “pitch” should be construed standing alone (as Panasonic proposes) or as part of a longer claim phrase (as Magna contends). Dkt. No. 49 at 10. For the term “pitch,” Panasonic asserts that the intrinsic evidence is clear that the term means “spacing” and that Magna raises no substantive disputes with this proposed construction. *Id.* For the six longer “antenna pitch” phrases, Panasonic argues that Magna’s proposed constructions import unclaimed limitations and are not supported by the intrinsic record. *Id.* at 11. The Court agrees.

The claims using the term “pitch” make sufficiently clear that “pitch” refers to a spacing between antenna elements. *See, e.g.*, ’516 Patent at 22:5-9 (claim 1 reciting “a transmitting antenna pitch of the transmitting array antenna in the first direction is larger than 1 wavelength” and “a receiving antenna pitch of the receiving array antenna in the first direction is larger than 1 wavelength”); *see also* ’149 Patent at 21:65–22:3 (claim 1 reciting “an absolute value of a

difference between the first transmitting antenna pitch of the transmitting array antenna in the first direction and the receiving antenna pitch of the receiving array antenna in the first direction is not smaller than 0.5 wavelength and not larger than 0.75 wavelength”). The Court finds that the use of the term “pitch” does not support narrowing the claims to a particular antenna design—one with “single and equal amount of spacing” between each of the antenna elements, i.e., a uniform array—to the exclusion of all other designs. Rather, the term “pitch” is introduced in the claims with the article “a” (e.g., “*a* transmitting antenna pitch” and “*a* receiving antenna pitch”), thus indicating that there can be more than one “pitch” for the transmitting array antenna and the receiving array antenna. *See Baldwin Graphic Systems, Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342-43 (Fed. Cir. 2008) (explaining that “this court has repeatedly emphasized that an indefinite article ‘a’ or ‘an’ in patent parlance carries the meaning of ‘one or more.’”) (citation omitted). Moreover, that there can be one or more “pitch” in the transmitting and receiving array antennas is expressly indicated in other claims through the use of the introductory descriptors “first” and “second.” *See, e.g.*, ’516 Patent at 22:66-67 (“a first pitch of the first array antenna”); 23:1-2 (“a second antenna pitch of the second array antenna”); 23:3-5 (“an absolute value of a difference between the first antenna pitch of the first array antenna and the second antenna pitch of the second array antenna”).

As with the term “array antenna,” Magna effectively argues with the “antenna pitch” terms that the claims are limited to uniform (i.e., non-random) antenna arrays. The Court does not agree with Magna’s narrow interpretation. As previously noted Magna acknowledges that not all array antennas in the abstract require identical antenna elements in a regular arrangement. Dkt. No. 51 at 12; *see also* Dkt. No. 45-10 at ¶ 20 (recognizing that there are two basic types of array antenna geometries, uniform and random); 45-10 at ¶ 23 (acknowledging that the term “element spacing”

is applicable to both uniform and random antenna arrays).⁷ If the claims were intended to be limited to a specific antenna design, such as the uniform array antenna argued by Magna, this restrictive language could have been included with the claims. Here, the claims that use the term “pitch” do not include such restrictive language.

The unencumbered use of the term “pitch” to refer to antenna element spacing is confirmed by the radar patent specifications. *See, e.g.*, ’149 Patent at Abstract (“the subarray element has a dimension larger than a predetermined antenna element spacing in the first direction, and an absolute value of a difference between a subarray element spacing of the transmitting array antenna and a subarray element spacing of the receiving array antenna is equal to the predetermined antenna element spacing”); 3:55-56 (“a spacing between the subarray elements needs to be about 1 wavelength or larger”); 3:44–4:32 (disclosing different spacing of antenna subarray elements). Even if all disclosed embodiments describe a “single and equal amount of spacing” between antenna elements, as Magna argues (Dkt. No. 45 at 26), the Court finds in this case that it would be improper to import this limitation from the specification into the claims. *Liebel-Flarsheim*, 358 F.3d at 906.

Magna argues that prior art patents cited and discussed during the prosecution of the radar patents lends further support for its “single and equal amount of spacing” proposed construction. The Court disagrees. For example, Magna points out that during prosecution of the ’516 Patent the examiner expressly noted that U.S. Publication No. 2013/0088393 (“Lee”) taught “a receiving antenna pitch of the receiving array antenna in the first direction is larger than 1 wavelength.” Dkt.

⁷ Magna cites to its expert and argues that grating lobes—a problem that the radar patents sought to overcome—is a phenomenon typically only referred to in the art in the context of uniform array antennas. Dkt. No. 45 at 30 (citing Dkt. No. 45-10 at ¶ 32). However, Magna’s expert further acknowledges that “a nonuniform array can exhibit something like grating lobes.” Dkt. No. 45-10 at ¶ 32.

No. 45 at 28 (citing Dkt. No. 45-6 at 11-12). Rather than requiring “single and equal amount of spacing,” Lee purports to use “antenna pitch” to mean “antenna element spacing, center-to-center.” Dkt. No. 45-8 at ¶ 19 (describing that “[i]n some examples, the receive antenna has an antenna pitch (antenna element spacing, center-to-center)”). Thus, it appears that the Patent Office understood “pitch” to be synonymous with “spacing,” particularly as measured center-to-center in the context of Lee’s disclosure. *Id.* Notably, during prosecution of the radar patents, the applicant did not assert that the claims, or any terms recited in the claims, were limited to overcome the prior art references.

For the reasons set forth above, the Court construes the term “**pitch**” to mean “**spacing**.” With the term “pitch” construed, the Court finds that the six larger “antenna pitch” phrases that use the term are readily understood in accordance with their plain and ordinary meaning.

V. CONSTRUCTION OF DISPUTED TERMS OF THE MAGNA ASSERTED PATENTS

A. The ’336 and ’799 Patents

1. The “substantially” claim terms

Claim Term	Panasonic’s Proposal	Magna’s Proposal
substantially sealed	Indefinite	Plain and ordinary meaning
substantially preclude water intrusion		
substantially hermetic seal		
substantially prevent intrusion of water		
’336 Patent, claims: 1, 18, 29		
’799 Patent, claim 1		

The parties submit that the “substantially” claim terms implicate the above-referenced claims of the ’336 and ’799 Patents.⁸ Dkt. No. 62 at 5. The dispute between the parties is whether use of the term “substantially” renders the claim phrases indefinite under 35 U.S.C. § 112, ¶ 2.⁹

The “determination of claim indefiniteness is a legal conclusion that is drawn from the Court’s performance of its duty as the construer of patent claims.” *Exxon Research & Eng’g Co. v. United States*, 265 F.3d 1371, 1375 (Fed. Cir. 2001). Section 112 entails a “delicate balance” between precision and uncertainty:

On the one hand, the definiteness requirement must take into account the inherent limitations of language. Some modicum of uncertainty, the Court has recognized, is the price of ensuring the appropriate incentives for innovation. . . . At the same time, a patent must be precise enough to afford clear notice of what is claimed, thereby apprising the public of what is still open to them. Otherwise there would be a zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims. And absent a meaningful definiteness check, we are told, patent applicants face powerful incentives to inject ambiguity into their claims . . . Eliminating that temptation is in order, and the patent drafter is in the best position to resolve the ambiguity in . . . patent claims.

Nautilus Inc. v. Biosig Instruments, Inc., 572 U.S. 898, 909-10 (2014) (citations omitted). Therefore, in order for a patent to be definite under § 112, ¶ 2, “a patent’s claims, viewed in light of the specification and prosecution history, [are required to] inform those skilled in the art about the scope of the invention with reasonable certainty.” *Id.* at 910. “The definiteness requirement . . . mandates clarity, while recognizing that absolute precision is unattainable.” *Id.* The Magna Asserted Patents are presumed valid. 35 U.S.C. § 282. The burden is on Panasonic to show by

⁸ The Magna Asserted Patents are part of the same patent family, and the parties agree that their specifications are nearly identical. *See* Dkt. No. 47 at fn. 1; Dkt. No. 48 at fn. 1. The Court refers to the ’336 Patent when referencing the common specification.

⁹ As the Magna Asserted Patents have an effective filing date earlier than Sept. 16, 2012, the pre-AIA version of 35 U.S.C. § 112 governs the definiteness analysis here.

clear and convincing evidence that the “substantially” claim terms fail to comply with the § 112 definiteness requirement. *Nautilus*, 572 U.S. at 912 n. 10.

Panasonic argues that “substantially” in the disputed terms fails to inform a POSITA of the scope of the claims with reasonable certainty, thus rendering the claims indefinite. Dkt. No. 47 at 5. Panasonic asserts that “substantially” is a term of degree and that the meaning of these phrases can vary widely based on a number of factors. *Id.* at 5. Panasonic acknowledges that the “substantially” claim terms permit some amount of air and water to enter through the seal. *Id.* at 8. But, Panasonic argues that the intrinsic evidence is devoid of any guidance on the amount of water and/or air that may enter through the seal while still falling within the claim scope. *Id.*

Magna argues that “substantially” is a well-recognized term of approximation. Dkt. No. 48 at 7. Magna asserts that courts have consistently found that the use of relative terms such as “substantially” do not render patent claims so unclear as to prevent a POSITA from ascertaining the scope of the claims. *Id.* at 7-9 (citations omitted). Magna argues that Panasonic’s cited cases finding claim terms using “substantially” indefinite are “inapposite outliers” that do not support a finding of indefiniteness in the instant case. *Id.* at 9. The Court agrees.

As a threshold matter, the Court notes that the Federal Circuit has repeatedly explained “that relative terms such as ‘substantially’ do not render patent claims so unclear as to prevent a person of skill in the art from ascertaining the scope of the claim.” *Tinnus Enterprises, LLC v. Telebrands Corp.*, 733 F. App’x 1011, 1018 (Fed. Cir. 2018) (quoting *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1359 (Fed. Cir. 2012). “As long as claim terms satisfy [the *Nautilus*] test, relative terms and words of degree do not render patent claims invalid.” *Id.* (quoting *One-E-Way, Inc. v. Int’l Trade Comm’n*, 859 F.3d 1059, 1063 (Fed. Cir. 2017).

Here, the Court finds that the “substantially” terms satisfy the *Nautilus* test because the claim language, when read in light of the specification, provides sufficiently objective boundaries that informs a POSITA about the scope of the invention. In view of the intrinsic evidence, a POSITA would understand that the “substantially” claim terms describe the characteristics of a seal in a vehicle imaging system that sufficiently limits water intrusion such that it is “substantially impervious to environmental elements, such as rain, snow, dirt, dust, road splash, road debris and the like.” ’336 Patent at 3:30-34. In other words, the disputed terms inform a POSITA that the seal must be sufficient to prevent water intrusion when exposed to environmental effects during vehicle operation. *Id.* at 1:62-66 (explaining that “for camera sensors mounted on the exterior of a vehicle, protection against environmental effects, such as rain, snow, road splash and/or the like, is important”); 6:58-62 (“Therefore, the present invention provides a camera module for a vehicle which may be substantially hermetically sealed to limit or substantially preclude water intrusion or the like into the housing or module, or which may be vented to allow for water vapor to enter or exit the module.”). The Magna Asserted Patents explain that conventional systems “do not provide a substantially water tight seal, and water droplets thus may enter the housing.” *Id.* at 2:6-8. To address this problem, the Magna Asserted Patents explain that “[t]he present invention thus provides a camera module that maintains the camera or imaging sensor and is substantially impervious to environmental elements, such as rain, snow, dirt, dust, road splash, road debris and the like.” *Id.* at 3:30-34.

The Magna Asserted Patents further describe the types of seals that can satisfy the sealing requirements imposed by the “substantially” claim terms. Claim 1, for example, recites that the connector portion and the camera portion are “laser welded together to form a substantially hermetic seal.” ’336 Patent at 34:57-59. Claim 17 provides additional detail, describing:

said first portion and said second portion being one of laser welded and sonic welded together to substantially seal said imaging sensor and associated components within said plastic housing, wherein said housing includes a ventilation portion, said ventilation portion being at least partially permeable to water vapor to allow vapor to pass therethrough while substantially precluding passage of at least one of water droplets and contaminants.

See '336 Patent at 36:62–37:3. Further objective guidance is provided in the specification. *See, e.g.,* '336 Patent at 3:7-11 (“The present invention is intended to provide a camera module which includes a camera or image sensor and a circuit board positioned within a housing, which may be laser welded or sonic welded or the like to substantially seal the camera and circuit board within the housing.”); 3:40-43 (“The first and second portions are preferably laser welded together or sonic welded together to substantially seal the camera or sensor and associated components within the housing.”); 3:43-47 (“The laser welded or sonic welded plastic housing provides a substantially hermetic seal to prevent water intrusion or the like into the housing. Alternatively, and less preferably, the first and second portions may be adhesively sealed or joined.”); 12:25-26 (“The laser or sonic welding of the seam substantially seals and secures cover portion 20 onto camera receiving portion 12, and may limit or substantially preclude any water intrusion or contaminant intrusion into the camera receiving portion at the outer end 12c.”) In short, the intrinsic evidence describes the “substantially” claim terms in the context of environmental conditions the vehicle imaging system should be capable of withstanding, an amount of water moisture that is unacceptable (e.g., water droplets), and further provides exemplary seals that can satisfy the claim requirements. The Court finds that this disclosure provides sufficient objective boundaries for a POSITA with a working knowledge of vehicle imaging systems to ascertain the scope of the “substantially” terms with reasonable certainty. *Nautilus*, 572 U.S. at 909 (explaining that the definiteness requirement is considered from the perspective of those skilled in the relevant art).

Panasonic argues that the use of the term “hermetic seal” in claim 18 of the ’336 Patent creates additional ambiguity because it is different from the “substantially hermetic seal” term in claim 1. Dkt. No. 47 at 9-10. The Court disagrees. Panasonic focuses on claim 18’s use of the term “hermetic seal” in isolation. In full context, claim 18 recites “forming a hermetic seal therebetween *in order to substantially preclude water intrusion* into said plastic housing therethrough.” ’336 Patent at 37:16-19 (emphasis added). The Court finds that the “hermetic” phrases in claims 1 and 18 are directed to the same feature, albeit using slightly different wording. *Compare* ’336 Patent at 34:59-63 (claim 1 describing “a substantially hermetic seal” that “substantially seal[s] to limit or substantially preclude water intrusion”) *with* ’336 Patent at 37:17-20 (claim 18 describing “a hermetic seal” that “substantially preclude[s] water intrusion into said plastic housing therethrough”). In other words, when considered in full context, the Court finds that claim 1 and claim 18 use the terms “hermetic seal” (claim 18) and “substantially hermetic seal” (claim 1) interchangeably. *See Baran v. Med. Device Techs., Inc.*, 616 F.3d 1309, 1316 (Fed. Cir. 2010) (holding that the implication of separate terms having different meanings is overcome where the patentee used the terms interchangeably). This understanding is confirmed by the specification, which never uses the term “hermetic seal” without the modifier “substantially.” Dkt. No. 55 at 9.

For the reasons set forth above, the Court finds that Panasonic has not established by clear and convincing evidence that the “substantially” claim terms are indefinite. Having found the terms not indefinite, the Court concludes that the **“substantially” claim terms** are given their **plain and ordinary meaning**.

2. Preamble: “suitable for use for”

Panasonic’s Proposal	Magna’s Proposal
Indefinite	The preamble is not a limiting Alternatively: Plain and ordinary meaning

The “suitable for use for” term appears in the preambles of claims 1 and 28 of the ’799 Patent and claims 1 and 25 of the ’876 Patent. Dkt. No. 62 at 6. Claim 1 of the ’799 Patent is reproduced below in pertinent part with the disputed term in italics:

1. A camera module *suitable for use for* a vision system of a vehicle, said camera module comprising:

’799 Patent at 34:54-55 (Claim 1 preamble); *see also* ’876 Patent at 34:53-54 (“1. A camera assembly *suitable for use for* a vision system of a vehicle, said camera assembly comprising:”). The parties’ disputes concern: 1) whether the preamble is limiting; and 2) if limiting, whether the preamble is impermissibly subjective, thus rendering the claim indefinite.

Panasonic argues that the preambles are limiting because they define the environment in which the invention operates and therefore specify capabilities that an infringing instrumentality must have. Dkt. No. 47 at 16. Panasonic contends that the preamble phrase “suitable for use for a vision system of a vehicle” is subjective. Panasonic asserts that this preamble phrase renders the claims indefinite because the ’799 and ’876 Patents fail to disclose a clear boundary that would permit a POSITA to objectively confirm what is and what is not a camera [module/assembly] that is “suitable for use for a vision system of a vehicle.” *Id.* Magna argues that the preambles are not limiting. Dkt. No. 48 at 17. Magna further argues that even if the preambles are found to be limiting the disputed claim phrase is not indefinite. *Id.* For the reasons below, the Court finds that the preambles of the claims-at-issue are not limiting.

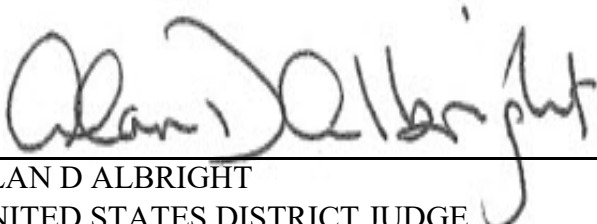
The preamble phrase “suitable for use for a vision system of a vehicle” describes an intended purpose or use for the invention and does not describe a structural feature. Rather, both the ’799 Patent and ’876 Patent define a structurally complete invention in the claim body, thus confirming that the preamble is not a limitation. *See Shoes by Firebug LLC v. Stride Rite Children’s Group, LLC*, 962 F.3d 1362, 1367 (Fed. Cir. 2020) (“[A] preamble is not limiting where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.”); *see also Catalina*, 289 F.3d at 808. Panasonic argues that the preambles’ use of the term “camera [module/assembly]” serves as antecedent basis for this same term in the body of the claim, thus making the preambles a limitation. Dkt. No. 47 at 17. The Court disagrees. The preambles do not define or refine the scope of the asserted claims. Moreover, the preambles do not illuminate the meaning of any term in the claim, nor do they provide essential context for understanding the claim’s meaning. Instead, the bodies of the claims recite a structurally complete invention. The Court therefore finds that the introductory use of the term “camera [sensor/module]” in the preambles does not make the preamble a limitation.

Even if the non-limiting preambles are treated as limitations, the Court finds that the phrase “suitable for use for” is not subjective and, therefore, not indefinite. When considered in context of the intrinsic evidence, the Court finds that the phrase is reasonably understood by a POSITA. The specification describes objective criteria—including features and capabilities—that a POSITA would consider in determining whether a camera [module/assembly] is “suitable for use for a vision system of a vehicle.” For example, the specification explains that such camera [module/assembly] is one that can be “mounted to an exterior portion of a vehicle for providing an image of a scene exteriorly of the vehicle” and further includes “color imaging and a low light imaging capability.”

'336 Patent at 1:21-24. The specification further explains that “[t]he present invention thus provides a camera module that maintains the camera or imaging sensor and is substantially impervious to environmental elements, such as rain, snow, dirt, dust, road splash, road debris and the like.” ’336 Patent at 3:30-34. Additionally, the specification explains that “[t]he present invention also provides at least partial, and preferably substantial, reduced vibration affects [sic] of the camera or image sensor.” *Id.* at 3:34-36. The specification also describes that a “suitable” camera [module/assembly] is one that can “present a color image to the driver that is representative of the exterior scene as perceived by normal human vision” and that is “useful in all conditions, and particularly in all lighting conditions.” *Id.* at 2:36-40. Such camera [module/sensor] is also one that is “capable of meeting automotive specifications.” *Id.* at 1:31-32. Accordingly, even if treated as a limitation, the Court finds that the phrase “suitable for use for”—when read in the context of the claims and the specification—sufficiently conveys to a POSITA objective criteria for ascertaining the scope of the claims with reasonably certainty.

For the reasons set forth above, the Court finds that the preambles of claims 1 and 28 of the ’799 Patent and claims 1 and 25 of the ’876 Patent are not limiting. Even if treated as limiting, the Court finds that Panasonic has not met its burden to show by clear and convincing evidence that the preambles of these claims are indefinite. Rather, if treated as a limitation, the Court concludes that the preambles would be attributed their plain and ordinary meaning.

SIGNED this 3rd day of March, 2022.


 ALAN D ALBRIGHT
 UNITED STATES DISTRICT JUDGE